Claims

[c1]   1. A method for routing communication lines between blocks of an application specific integrated circuit (ASIC), comprising:

determining route paths between blocks of the ASIC;

scanning the route paths for transmission line replacement candidates; and

for each transmission line replacement candidate, automatically selecting a buffered wire or a transmission line to implement the route path.

[c2]   The method of claim 1, wherein determining route paths further comprises:

obtaining multiple route paths using wires with and without buffers.

[c3]   The method of claim 1, wherein a transmission line replacement candidate is selected from the group consisting of a route path the passes over a block of the ASIC and a route path that does not require a buffer.

[c4]   The method of claim 1, wherein automatically selecting a buffered wire or a transmission line to implement the route path further comprises:

providing a look-up table containing process specific parameters of the transmission line.

[c5]   The method of claim 4, wherein automatically selecting a buffered wire or a transmission line to implement the route path further comprises:

determining a length of the route path for the buffered wire;

determining a length of the route path for the transmission line, and

obtaining, based on the process specific parameters of the transmission

ine contained in the look-up table, a value for the transmission line;

comparing the value for the transmission line to a corresponding value

for the buffered wire; and

automatically selecting the buffered wire or the transmission line based

on the comparison.

[c6]   The method of claim 5, wherein the value is signal delay per unit length.

[c7]   The method of claim 1, wherein the transmission line comprises a

coplanar waveguide transmission line.

[c8]   8. A program product stored on a recordable medium for routing

communication lines between blocks of an application specific integrated

circuit (ASIC) which, when executed, comprises:

program code for determining route paths between blocks of the ASIC;

program code for scanning the route paths for transmission line

replacement candidates; and

program code for automatically selecting a buffered wire or a

transmission line to implement the route path, for each transmission line

replacement candidate.

[c9]   The program product of claim 8, wherein the program code for

determining route paths further comprises:

program code for obtaining multiple route paths using wires with and

without buffers.

[c10] The program product of claim 8, wherein a transmission line replacement

candidate is selected from the group consisting of a route path the

passes over a block of the ASIC and a route path that does not require a buffer.

[c11]   The program product of claim 8, wherein the program code for automatically selecting a buffered wire or a transmission line to implement the route path further comprises:
program code for accessing a look-up table containing process specific parameters of the transmission line.

[c12]   The program product of claim 11, wherein the program code for automatically selecting a buffered wire or a transmission line to implement the route path further comprises:
program code for determining a length of the route path for the buffered wire;
program code for determining a length of the route path for the transmission line, and obtaining, based on the process specific parameters of the transmission line contained in the look-up table, a value for the transmission line;
program code for comparing the value for the transmission line to a corresponding value for the buffered wire; and
program code for automatically selecting the buffered wire or the transmission line based on the comparison.

[c13]   The program product of claim 12, wherein the value is signal delay per unit length.

[c14]   14. A design tool for routing communication lines between blocks of an application specific integrated circuit (ASIC), comprising:

a system for determining route paths between blocks of the ASIC;

a system for scanning the route paths for transmission line replacement candidates; and

a system for automatically selecting a buffered wire or a transmission line to implement the route path, for each transmission line replacement candidate.

[c15] The design tool of claim 14, wherein the system for determining route paths further comprises:

a system for obtaining multiple route paths using wires with and without buffers.

[c16] The design tool of claim 14, wherein a transmission line replacement candidate is selected from the group consisting of a route path the passes over a block of the ASIC and a route path that does not require a buffer.

[c17] The design tool of claim 14, wherein the system for automatically selecting a buffered wire or a transmission line to implement the route path further comprises:

a look-up table containing process specific parameters of the transmission line.

[c18] The design tool of claim 17, wherein the system for automatically selecting a buffered wire or a transmission line to implement the route path further comprises:

a system for determining a length of the route path for the buffered wire;

a system for determining a length of the route path for the transmission

line, and obtaining, based on the process specific parameters of the transmission line contained in the look-up table, a value for the transmission line;

a system for comparing the value for the transmission line to a corresponding value for the buffered wire; and

a system for automatically selecting the buffered wire or the transmission line based on the comparison.

[c19] The design tool of claim 18, wherein the value is signal delay per unit length.

[c20] The design tool of claim 14, wherein the transmission line comprises a coplanar waveguide transmission line